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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/821,113   | 04/08/2004  | James Kundinger      | BON-145             | 8242             |
| 7590   | 07/25/2005  |                      | EXAMINER            |                  |
| John R. Benefiel<br>Suite 100 B<br>280 Daines Street<br>Birmingham, MI 48009 |             |                      | BECK, DAVID THOMAS  |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 1732                |                  |

DATE MAILED: 07/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                           |                  |
|------------------------------|---------------------------|------------------|
| <b>Office Action Summary</b> | Application No.           | Applicant(s)     |
|                              | 10/821,113                | KUNDINGER ET AL. |
|                              | Examiner<br>David T. Beck | Art Unit<br>1732 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 April 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-19 is/are pending in the application.
  - 4a) Of the above claim(s) 20-26 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-19 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |



## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Shuert (5,658,523).

With regard to claim 1, Shuert teaches a method of making a hollow plastic part by a thermoforming process (abstract) including: continuously extruding a sheet onto a shear support and cutting said extruded sheet into discrete lengths while said sheet is being extruded (column 5, lines 35-48); immediately loading in pairs of successively cut sheets one at a time side by side onto a sheet transfer car (column 5, lines 5-13) and transferring said car with said loaded pair of sheets into an oven and heating said sheets therein to a proper temperature for thermoforming (column 6, lines 8-15); transferring said transfer car and heated sheets into a forming station and thermoforming respective pieces of said part from each sheet in cavities in molds in said forming station (column 6, lines 15-68); thereafter forcing said molds with said formed sheets together to fuse said pieces together into a completed part (column 6, lines 15-68); and thereafter separating said molds and removing said completed part (column 8, lines 37-48).

With regard to claim 6, Shuert teaches that the cut sheets are deposited onto said support at least in part by conveying said cut sheets onto said supports (column 5, lines 5-13).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuert (5,658,523) in view of Murschall et al (6,277,474).

With regard to claim 12, Shuert teaches the invention of claim 1 as discussed above, but fails to teach that the shear support is cooled to cool said extruded sheet. Murschall et al teaches cooling a shear support (column 13, lines 38-51) and cutting a thermoplastic sheet (abstract). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to cool the cutting support in the process taught by Shuert using a cooling system as taught by Murschall et al. The motivation to do so would have been to solidify the sheet into a state sufficient to cut it off easily (Murschall et al, column 13, line 46).

With regard to claim 13, Shuert teaches that the sheet is conveyed onto said shear support (column 4, lines 63-65).

5. Claims 8-11, 14 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuert (5,658,523) in view of Alesi (3,779,687).

With regard to claim 8, Shuert teaches the invention of claim 1 as discussed above and that each of said molds is mounted on a platen (column 2, lines 25-30), but does not expressly teach that said molds are initially each positioned with a cavity facing upward and said heated sheets are lowered by said transfer car onto a respective mold cavity and thereafter thermoformed into said cavity. Alesi teaches that each of said molds is mounted on a platen (column 2, lines 25-30), said molds are initially each positioned with a cavity facing upward (Figure 5) and said heated sheets are lowered by said transfer car onto a respective mold cavity (column 4, lines 64-68) and thereafter thermoformed into said cavity (column 5, lines 3-18). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a mold as taught by Alsei in the process taught by Shuert. The motivation to do so would have been to mold an object with a deep mold cavity (column 5, lines 3-11).

With regard to claim 9, Alesi teaches that said molds are pivoted to move said mold cavities into facing positions and are thereafter brought together to fuse said pieces together (column 5, lines 35-67; column 6, lines 1-14).

With regard to claim 10, Alesi teaches that said molds are locked together and thereafter squeezed together by hydraulic cylinders to fuse said molded sheets together (column 5, line 57-67).

With regard to claim 11, Shuert teaches two sets of molds are alternately positioned to receive a pair of sheets to be thermoformed while the other set remains forced together to cool said part prior to separating said molds (column 3, lines 6-11).

With regard to claim 14, Alesi teaches a pair of mold plugs are lowered as said sheets are lowered onto said mold cavities and are thereafter extended to be engaged with said sheets to assist said thermoforming thereof (column 5, lines 3-18).

With regard to claim 16, Alesi teaches that the sheet transfer car is lowered to bring said heated sheets over said mold cavities (column 4, lines 62-67).

With regard to claim 17, Alesi teaches that the transfer car releases said heated sheets after thermoforming thereof and is raised thereafter (column 5, lines 28-34).

6. Claims 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shuert (5,658,523) in view of Alesi (3,779,687) and Muirhead (20020113694).

With regard to claim 15, Shuert in view of Alesi teaches the invention of claim 14 as discussed above, but fails to teach that the mold plugs are mounted to said support to be lowered therewith. Muirhead teaches that said transfer car is lowered on a support to bring said sheets over said mold cavities and said mold plugs are mounted to said support to be lowered therewith (paragraph 0099). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to connect the mold plugs to the support in the process taught by Shuert in view of Alesi. The motivation to do so would have been to distribute the heat deformable sheet material more uniformly upon a mold surface (Muirhead, paragraph 0099).

With regard to claim 18, Muirhead teaches placing an insert is placed in at least one of said cavities formed in said sheets after said transfer car is raised (paragraph 0099).

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7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shuert (5,658,523) in view of Alesi (3,779,687) and Arends et al (5,980,231).

With regard to claim 19, Shuert in view of Alesi teaches the invention of claim 17 as discussed above, but does not expressly teach that the transfer car is raised above the top of said oven when being raised from said mold cavities and are thereafter transferred linearly back to a position over said supports preparatory to being loaded with another two cut sheets by said shuttles. Arends et al teaches that the transfer car is raised above the top of said oven when being raised from said mold cavities and are thereafter transferred linearly back to a position over said supports preparatory to being loaded with another two cut sheets by said shuttles (column 4, lines 10-54; Figures 2A-2G). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to place the transfer cars taught by Shuert on a track that raises the transfer car over the oven to return it to the loading station as taught by Arends. The motivation to do so would have been to provide a linear transfer system to hold sheets during heating and forming steps to mold articles too large for practical application to rotary machines (Arends, column 1, lines 52-58).

8. Claims 2, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuert (5,658,523) in view of Nehring (6,705,853).

With regard to claim 2, Shuert teaches the invention of claim 1 as discussed above, but does not expressly teach loading sheets into said transfer car by a pair of shuttles each alternately receiving a successive cut sheet, each shuttle shifted to be aligned with a respective one of a pair of sheet supports and conveying said sheets

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onto a respective support, and positioning a respective one of two clamping frames on said transfer car around a respective cut sheet on a support and clamping the same into said respective clamping frame. Nehring teaches loading sheets into said transfer car by a pair of shuttles each alternately receiving a successive cut sheet (column 4, lines 21-24), each shuttle shifted to be aligned with a respective one of a pair of sheet supports (column 4, line 46, lifting shifts the shuttle position) and conveying said sheets onto a respective support (column 4, lines 51-52), and positioning a respective one of two clamping frames on said transfer car around a respective cut sheet on a support and clamping the same into said respective clamping frame (column 4, lines 53-66). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to load the sheets from the continuous sheet sources in the process taught by Shuert using two shuttles as taught by Nehring. The motivation to do so would have been to readily locate specific exterior surface treatments or features such as designs on the surfaces of the products while alleviating the necessity of providing such surface treatment on both surfaces of the thermoformable panels (Nehring, column 5, lines 10-17).

With regard to claim 5, Shuert teaches the successive transfer cars are loaded with pairs of sheets, said successive transfer cars thereafter occupying said oven and said forming station respectively (abstract). Nehring teaches the cars are loaded by said shuttles (column 4, lines 21-66).

With regard to claim 7, Nehring teaches said cut sheets are moved onto each

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of said shuttles by a conveyor on each of said shuttles (column 4, lines 50-62; figure 2, number 94, conveyor moves suction assembly from lift off point to frame).

9. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shuert (5,658,523) in view of Nehring (6,705,853) and Arends et al (5,980,231).

With regard to claim 3, Shuert in view of Nehring teaches the invention of claim 2 as discussed above, but does not expressly disclose that said transfer car is positioned above said pair of supports as a cut sheet is deposited on each support, and said transfer car is thereafter lowered to enclose said sheets in respective clamping frames. Arends teaches that said transfer car is positioned above said pair of supports as a cut sheet is deposited on each support, and said transfer car is thereafter lowered to enclose said sheets in respective clamping frames (column 4, lines 5-42). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to place the transfer cars taught by Shuert on a track that is positioned over and is lowered onto the sheets in respective clamping frames as taught by Arends. The motivation to do so would have been to provide a linear transfer system to hold sheets during heating and forming steps to mold articles too large for practical application to rotary machines (Arends, column 1, lines 52-58).

With regard to claim 4, Arends teaches that said transfer car is elevated to clear said supports after said sheets are clamped in to a respective clamping frame and thereafter moved into said oven (column 4, lines 65-67).

***Response to Arguments***

10. Applicant's arguments filed 4/14/05 have been fully considered but they are not persuasive.
11. With regard to claim 1, Applicant argues that a single extruded sheet is cut into lengths and then loaded side by side into the clamping frame. However, the claim uses the phrase "including" which is an open-ended phrase and allows for more than one single continuous sheet source. Therefore, when given its broadest reasonable interpretation, the claim includes a process that feeds two or more single continuous sheets onto a shear support. Shuert teaches feeding two single continuous sheets onto a shear support and thus anticipates claim 1 as discussed above.

***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David T. Beck whose telephone number is 571-272-2942. The examiner can normally be reached on Monday - Friday, 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on 517-272-1196. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DTB  
July 12, 2005

DTB



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SUPERVISORY PATENT EXAMINER